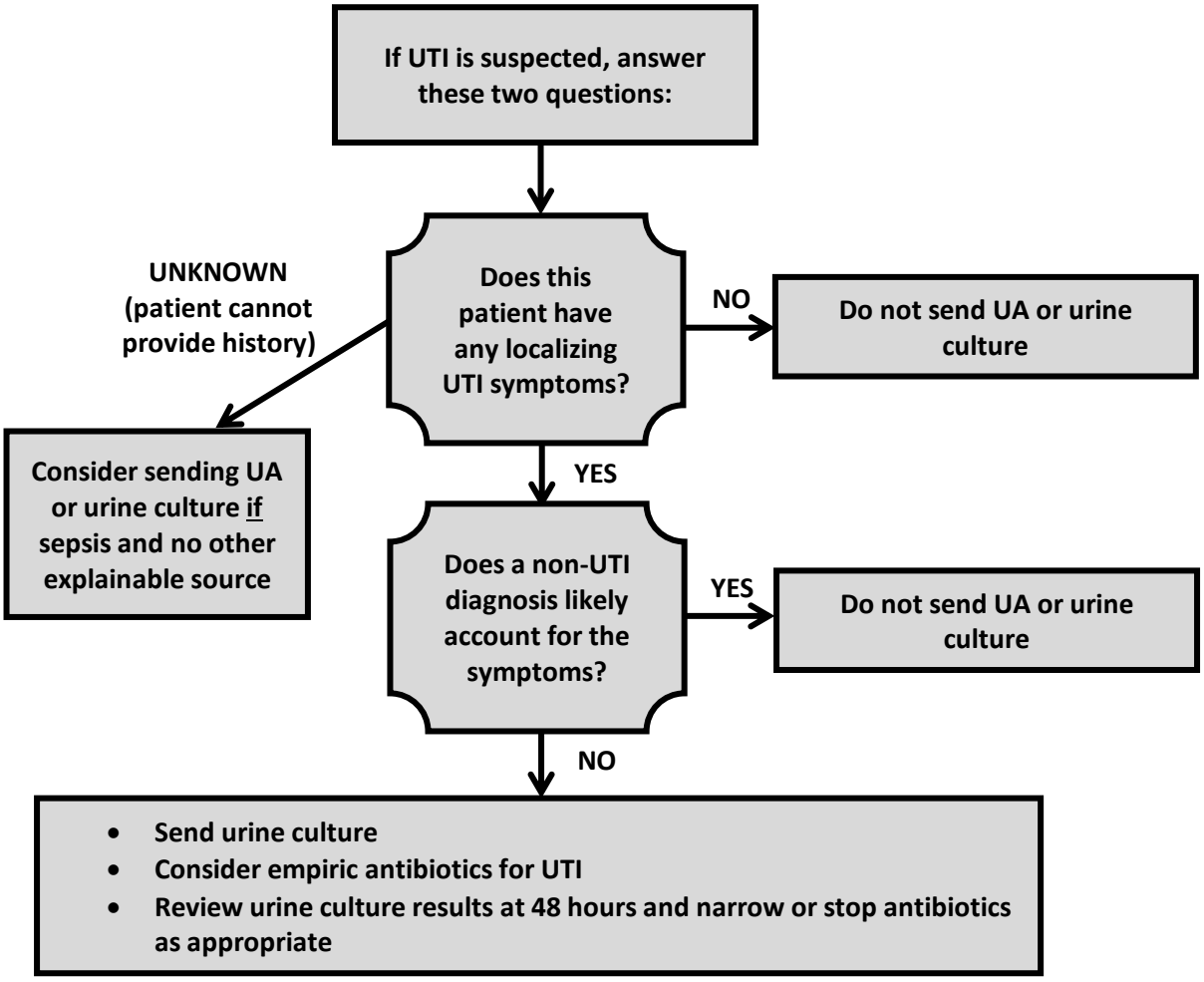
JRMC Guideline for the Diagnosis and Management of UTI in Adults



DEFINITIONS		COMMON PATHOGENS
Asymptomatic bacteriuria	Patients with positive urine cultures ($\geq 10^5$ CFU/mL) who lack symptoms of a UTI	*E. coli, K. pneumonia,* other gram-negative bacilli*, Enterococcus spp., Candida*
Uncomplicated Cystitis	UTI occurring in healthy, premenopausal, non-pregnant women with no history suggestive of an urinary tract abnormality	*E. coli, K. pneumonia, Proteus, S. saphrophyticus*
Complicated Cystitis	UTI in the setting of an underlying condition or factor which increases the risk of treatment failure (e.g. male sex, diabetes, pregnancy, symptoms ≥ 7 days prior to seeking care, hospital acquired, renal failure, etc.)	**If no risk factors for MDRO***: *E. coli, K. pneumonia,* other gram-negative bacilli*, Enterococcus spp.* **If risk factors present for MDRO* (see below):** *E. coli, Pseudomonas aeruginosa, Enterobacter spp.*, *Enterococcus spp.,* other gram-negative bacilli
Pyelonephritis	UTI with the presence of upper urinary tract symptoms such as fever, CVA tenderness, nausea, vomiting, and signs of sepsis	Same pathogens as for complicated UTI
Catheter-Associated UTI (CA-UTI)	UTI in patients with indwelling urethral or suprapubic catheters or those who receive intermittent catheterization – typically presents without usual lower urinary tract symptoms, but CA-UTI defined by presence of both symptoms (e.g. fever, AMS, malaise, lethargy, flank pain, etc.) **and** positive urine culture with $\geq 10^3$ CFU/mL of ≥ 1 bacterial species	
Risk factors for MDRO UTI: hospitalization > 3 days or prior colonization/infection with an antibiotic-resistant organism OR severe sepsis, hemodynamic instability or shock		

NOTES REGARDING TREATMENT RECOMMENDATIONS BELOW
1. A one-time dose of a long-acting antimicrobial such as ceftriaxone or a consolidated 24h dose of an aminoglycoside is recommended when resistance to E. coli is > 20% to fluoroquinolones and/or TMP-SMX.
2. Evidence has shown decreased clinical efficacy with oral beta-lactam agents compared to fluoroquinolones/TMP-SMX; however JRMC antibiogram data does show higher susceptibility rates for oral beta-lactams.
3. Use of cefepime or ceftazidime for severe PCN allergy patients have also shown to be safe and may increase gram negative coverage beyond that of Aztreonam.

UTI Classification	Empiric Therapy	Recommended Duration
Asymptomatic Bacteriuria	**Do not treat unless pregnant or impending urologic procedure with bleeding is anticipated** Pregnant female: nitrofurantoin, oral beta-lactam Urologic procedure: cefazolin, ciprofloxacin, TMP-SMX	Pregnant women: 4-7 days Urologic procedure: Short course (1-2 doses)
Uncomplicated Cystitis (in women)	Preferred: nitrofurantoin 100 mg BID *Avoid use if > 65 years old and CrCl < 30 mL/min*	5 days
	Alternative: sulfamethoxazole-trimethoprim (TMP-SMX) 160/800 mg (one DS tablet) BID	3 days
	Alternative: fosfomycin 3g	Once
Complicated Cystitis, Pyelonephritis (Outpatient)	Preferred: Ceftriaxone[1] 1 g IV x1, followed by ciprofloxacin 500 mg BID or levofloxacin 750 mg daily or TMP-SMX one DS tablet BID	If fluoroquinolone: 5-7 days If TMP-SMX: 14 days; may consider 7-10 days if rapid response to treatment
	Alternative: Ceftriaxone[1] 1 g IV x1, followed by oral beta-lactam[2] (amoxicillin-clavulanate 875 mg BID or cefdinir 300 mg BID)	10-14 days
Complicated Cystitis, Pyelonephritis (Inpatient)	Preferred (no risk factors for MDRO): Ceftriaxone 1-2 g IV daily	5-14 days dependent on final agent chosen; switch to appropriate oral regimen once patient has improved and if susceptibility results allow
	Alternatives (severe beta-lactam allergy, no risk factors for MDRO): One time dose of tobramycin[1], followed by Ciprofloxacin 500 mg BID/levofloxacin 750 mg daily (IV/PO); TMP-SMX one DS tablet BID	Same as above
	Risk factors for MDRO: Pip/tazo 3.375-4.5 g ext. infusion q8h If severe beta-lactam allergy: Aztreonam[3] 2g q8h	
	Patients with **severe sepsis or septic shock:** consider the addition of vancomycin (per pharmacy protocol) ± tobramycin (per pharmacy protocol)	
CA-UTI	Mild/moderate illness: treat as per complicated cystitis guidance Severe illness: treat as per MDRO-risk guidance	